

# AAAG

ISSUE 8  
75¢

INSIDE

PLAYER  
MISSILE  
GRAPHICS

HARDWARE  
FEATURE

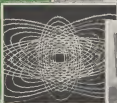
XL  
COLUMN

Programming  
Issue

GRAPHICS 8 TEXT



WILDWEST



DEMO 21



LOW PRICED SOFTWARE REVIEWED

ATARI USERS MAGAZINE... AN ATARI USERS MAGAZINE... AN ATARI USERS  
... GAMES... ATARI... NEWS... ATARI... PROGRAMS... ATARI... REVIEWS...



# PAGE 6

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Issue 8

February/March 1984

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## News and New Products

There are many rumours in the US at the moment that Atan have dropped the 1400XL and the 1450XLD from their range to concentrate on the 6000L and 800XL. One reliable source states however that Atan have **NOT** changed their plans and that the 1450XLD should be out in the Spring. This would seem to be borne out by a recent report that UK Marketing Director Eric Selman has recently been to the States to finalise plans for the U.K. release and to agree the U.K. specification.

Atan has plenty of software lined up for release in the first quarter of this year. January was due to see **MS PACMAN**, **JUNGLE HUNT** and **JOUST** with **ROBOTRON** due in February. **MOON PATROL**, **MARIO BROTHERS** and **PENGU** are due in March with **MILLIPEDE** and **DONKEY KONG JR** in April. (Play on, you arcade freaks!)

Great news if you have an XL model that won't boot your software. Atan have a Translator program that boots in the old 400/1000 operating system. See the XL column for further details.

Adventure International have signed an agreement with Marvel Entertainment Group for a series of at least 12 graphic adventures based on the great Comic heroes such as The Hulk, Spiderman and Captain America. Adventure International UK are working hard to bring the series to the U.K. as soon as possible but with conversions to all U.K. machines involved there is a great deal of work to do before The Hulk can burst upon your screen or Spiderman can cast his web over you.

English Software Co continues to increase its range of Atan software with six new titles to be released in mid-March. **SOLDIER OF FORTUNE** is an underground adventure with a war/mil theme. **TARZOO** features perspective scrolling and is written by Manuel Caballero of **FIREFLEET** fame. The sequel to **DIAMONDS** is **DAN STRIKES BACK** which features vertical scrolling. Also due are **NEPTUNE'S CAUGHTER**, **ADVENTURES OF ROBIN HOOD** and **CITADEL WARRIOR**. All except Citadel Warrior are 16K and will retail at £9.95 on disk or cassette. Also due for release are the first two foreign language learning programs - **GERMAN** and **FRENCH** and a multi-utility to follow **A.C.E.** which features a Page Editor, a Multi-Character Editor and a Single Character Editor all in one program.

Saddest news of the year is the closure of Efficient Chips who last year began to provide Atan owners with a valuable alternative source of

## THE PRICE REVOLUTION

*Atlan Data Services have introduced their FIRST GAME SERIES which is a re-release of some of the early titles from the Atanware catalog. The games were originally full priced titles and have been re-introduced at only £7.50 to give new owners an introduction to Atan at a modest cost. All games in the series will run in 16K and are available on cassette only.*

*Starcade have converted UP, UP and AWAY and SAWAGE POND to the Commodore 64 and have reduced the price for the Atan versions to only £8.95 to fall in line. They are available direct from Starcade and must now be two of the best value programs available for Atan anywhere.*

*Adventure International UK have announced price reductions virtually across their entire range. The Scott Adams Adventure series are now £3.95 with the graphics versions at £12.95. Arcade titles including classics such as Preppie, Sea Dragon and Stratos, are down to £14.95. The company are also working on 16K versions of the adventures.*

*Who says Atan software is expensive!*

software and Atan support. Many PAGE 8 readers had found their mail order service to be excellent and their advice and support invaluable. The closure is due to the pressures of the computer jungle and as a retailer who had Atan at heart they will be sadly missed. The bulletin board BOARDERS has also closed down but there are rumours that a couple of new Atan boards will spring up in its place.

New from Adventure International are **RALLY SPEEDWAY**, which is excellent, on ROM at £29.95 and **S.A.G.E.**, the Scott Adams Graphics Editor which was used to create the SAGA series. **S.A.G.E.** will enable you to mix highly complex graphics with your own BASIC program. A very powerful utility at £26.95. Also Adventure No 13 - **THE SORCEROR OF CLAYMORQUE CASTLE** should be available at £9.95 and there are rumours of Adventure 14 on its way.

## Readers Letters

# ATARI SUPPORT? WHERE?

Dear Sir

There is no doubt in my mind that the Atan home computers are the best available. Some might argue that the BBC Model B is superior but I would disagree. I had three months experience on the BBC and apart from its highest resolution and 80 columns, both of which are impracticable without a monitor, I can safely say that the Atan breaks spots off it.

So the Atan is a superb machine, yet it gets little mention in magazines and has minimal support from U.K. software manufacturers. Why? Here are my theories and suggestions as to how we can help cure this frustrating situation.

Firstly, the lack of software support. I believe there are two reasons. The XYZ Software Company starts in somebody's bedroom because that somebody having bought his new compute discovered it had no software support and the only way to play games was to write them yourself. Since this problem has never arisen for Atan users due to the copious supplies of excellent, if overpriced, software from the U.S.A. and also its excellent quality, those users have not had to produce their own software or have felt incapable of matching the standards reached by our colonial cousins. Secondly the already established BIG SOFTWARE CO LTD decides, quite rightly, before publishing a new title how to make the most money from it. How to do that? Sell to the largest market. What then are the most popular machines? A quick look through all the computer magazines...well it is clearly NOT the Atan, so no software for the Atan. This

brings me to the next point, lack of mention in magazines.

Why should this be? There are several reasons. Firstly, because the Atan had been available for some time before the boom in microcs they were rather overshadowed by the continual new releases (or should that be release class) Secondly because of the lack of U.K. software manufacturers there was a lack of software to review (Stateside manufacturers not sending or bothering to send review copies to U.K. magazines) and so the publishers were less aware of Atan than of the lesser U.K. micro which they had on non-stop with copious supplies of software. Thirdly and perhaps most importantly we user apathy. If users are constantly writing to magazines with tips, ideas, programme requests problems, features, or even to just ask. Why don't you devote more space to the Atan?, then they will respond. They must. They exist to make money, which they do by selling more copies. If they think that their market share will go up by giving more space to Atan then they will.

So what can you do? Write to the magazines, even if only to moan at the lack of Atan coverage. Write to the software houses, especially those who are currently testing the water such as Lakesoft, Quicksilver and Romac asking for more YOUR VOICE DOES COUNT! Also if you budding software authors, go to it! It is easier to produce better on the Atan because the hardware does so much more of the work for you and offers so much more. If you price your masterpiece reasonably, and hopefully get some good reviews, then people will flock to

your door. Think about it. Would you pay £30 for an excellent American program if you could buy an excellent British program for £8.00?

Mr B. Hertz

"Is there user apathy among Atan owners? What do you think? This letter was received BEFORE the Turn of The Year article in issue 7 and it echoes much of the sentiments of the lack of U.K. software development. I would obviously prefer you to send your articles and programs to PAGE 6 but one of the aims of PAGE 6 is to encourage Atan users to write and program and the more that can be published for Atan the better for everybody. One of the reasons that people do not submit articles and programs to magazines is fear of ridicule. I like to consider PAGE 6 as a stepping off point for future authors or programmers and if you have your article or program published by PAGE 6 then it will give you the confidence and encouragement to submit articles to the 'glaziers'. You will then even get paid for them! We may 'lose' contributors after their first submission but would hope that a certain 'loyalty' will remain and that they will continue to write for PAGE 6 as well as submitting articles to other magazines in the long run everyone benefits."

Please keep sending your letters on any subject, either in answer to queries raised by other readers or on matters that have not been covered before. Also send in any hints and tips that you feel might help other readers or enthusiasts to any of the programs printed.







## THE XL COLUMN

*Most published articles and programs will apply equally to the 400/800 and the XL models but there are certain areas that are unique to the XL. This column will feature such material and we would like your feedback on anything you may have discovered that does or does not work on an XL.*

There is quite a lot of software that will not work on the XL but help is at hand with The Translator from Atan. This boots in the old 400/800 Operating System and will allow virtually any program to run. PAGE 6 supplied The Atan Center in Birmingham with a copy and they have been able to boot every item which previously would not run with the exception of A.S. and Bandits. The Translator is available in the U.S. from Atan on disk or cassette at cost but at the time of writing Atan UK had not worked out the U.K. release. If you want one, tell Atan.

The Sting from issue 5 will not work on the XL - at least not as intended - as it uses the keyboard speaker in the 400/800.

The Revision 8 basic in the XL has a different token file structure which means that many of the Basic routines are not at the same addresses as the 400/800. The system reset routine in lines 8 and 100 of Scramble in issue 6 will not therefore work but it is such a neat little routine that we will let you know as soon as the equivalent on the XL is worked out.

### Useful XL POKEs

**729** Key Repeat Delay. Alters the time before a key repeats. POKE with 0 - 255 to reprogram multiples of a jiffy (1/50th second) before key repeats.

**730** Key Repeat Rate. Similar to 729 except that it controls the rate of repeat after the initial delay.

**731** Key Click. POKE with 255 to disable sound through the TV. POKE with 0 to enable.

**732** Help Key. 17 is stored here if the Help key is pressed, B1 when Help and Shift are pressed and 145 with CTRL and Help. Clear with 0.

**821** Keyboard. POKE with 255 to disable keyboard or 0 to enable.

**822** Text Scroll. POKE with 255 followed by 010 to fix scroll level. POKE with 0 to return to normal.

That's all for this issue. If you discover anything new which works on the XL, but not on the 400/800, we want to know.

## ARE YOU IN THE CLUB ?

If not, now is your chance to join the largest AT&T computer owners club in the U.K. Take advantage of the special offers and software library exchange scheme. Just 21 articles join to receive four issues of the club newsletter, which is packed with interesting and informative articles and also includes lots of program listings for you to type in and enjoy. These professionally produced 20 page newsletters are just what you've been looking for, whether you are an experienced computerist or just a beginner!

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**The U.K. AT&T Computer Owners Club,  
P.O. Box 3, Rayleigh, Essex.**

## WILDCREST continued from page 8

1208 079 147,3,145,204,24,144,27,147,  
1,141,204,4,147,4,27,124,4,27,123,4,  
127,174,4

1209 076 208,122,4,173,225,4,205,200,  
4,124,209,242,34,174

1210 074 147,4,141,3,238,143,3,238,14  
3,11,147,124,4,204,4,203,14,244,24,14,  
238

1211 074 145,14,41,1,141,3,238,147,4,  
143,3,238,24,144,225

1212 081 1 line 1 181 1

1213 07708 1208-P08 J-1256 TO 0242

080 A-P08 J-1400 J

1214 081-0807081-08-0807081/250 12-  
081-25081 0782 1208,12-0782 1208,12-0  
0781

1215 074 144,144,4,143,4,147,7,74,27,  
238

1216 081 1 incl. page 4 values 1

1217 08 J-1441 TO 0275-P08 J-1400

J-178 J-2248 TO 0275-P08 J-1400 J

1218 A-082 0275-0275-P08 J-1424 TO 1

077-P08 J-1400 J

1219 A-082 0275-0275-P08 1214, A-P08  
C 1214, A

1220 A-082 0275-0275-P08 1214, A-P08  
1214, A

1221 0781

## Player Missile Graphics .. an introduction

If you are a newcomer to the Atari you may not even know that Player Missile Graphics exist for Atari seems to want to keep it a secret. There is no mention in the manuals and using Player Missile Graphics is not as easy as some of Atari's other features. You may know what Player Missile Graphics are but don't know how to use them or you may even be completely in the dark. Either way read on for an introduction to the marvelous world of Players and Missiles. Before we begin let me say that this is merely an introduction and if you find that you already know the subject well why not write a program and article as a follow on to help other users?

Player Missile Graphics are relatively easy to set up and use in simple terms but begin to get more complicated when you require FAST movement or when vertical movement is needed. The purpose of this article is to introduce Player Missile Graphics and we will therefore leave vertical movement and the like for a future article. I have said that Player Missile Graphics are relatively easy but there are a number of steps to learn and it is best to go through these steps by stage. The various steps do not necessarily need to be approached in the same order but it is best to adopt a consistent approach to help you to remember the procedure for other programs. Some of the steps give you options but all are required to set up Player Missile Graphics. Here are the various steps:

1. Design your Players
2. Reserve RAM for PMG
3. Set the Graphics mode for the playfield
4. Tell ANTIC where to find PMG
5. Clear out PMG area
6. Set up initial parameters
  - a) Resolution
  - b) Width
  - c) Horizontal & vertical positions
  - d) Colours
7. Place players/missiles in memory
8. Set priority
9. Activate PMG

Once all of the above steps have been accomplished you will have your players and missiles on screen and then only two more things are required - movement and collision detection.

Normally tutorials on Player Missile Graphics take you through these stages and put a single player on screen leaving you to guess what to do next. I have written a simple game to demonstrate not only the setting up of Players and Missiles but also showing priority and collisions and giving you the opportunity of expanding the game using your new found knowledge. You can even play the game - in a limited form - as it stands. Quackshot is the name of the game and if you look at the listing, lines 1000 - 1200 contain the routine that sets up Player Missile Graphics and should be referred to as we go along. Let's start.

### DESIGN THE PLAYERS

Designing players is virtually the same as redefining characters except that although the image is eight bits wide the height can be up to 128 bytes in double-line resolution and 256 bytes in single-line resolution. There is not room in this article to go over bit-mapped images but the article on Character Redefinition in Issue 3 will provide the necessary background as will Memory in Issue 6. The first task then is with pencil and graph paper or a character design utility. Sketch out your player images and convert them to GATA. The GATA for your image is put into the program starting from the top of the image. We are using two players and the GATA is in lines 1080 and 1085.

### RESERVE RAM FOR PLAYERS

Player Missile Graphics require their own area of RAM which must not be interfered with by other parts of the program. The easiest way to provide such an area of protected memory is to lower RAMTOP which Basic recognizes as the upper limit of available memory. Location 108 holds the top of memory in pages - 256 bytes - and we can POKE a lower number in here to fool Basic into thinking that there is less memory available. Double-line resolution Player Missile Graphics requires 1024 bytes - 4 pages - and so in line 1000 we lower RAMTOP by first PEEKing the current value, then subtracting 4 and finally FORcing the new value into 108. Basic now thinks that memory ends 4 pages lower than it actually does and we can use the area above the new RAMTOP without interference.

### SET GRAPHICS MODE

In line 1010 we make a graphics call for the

## article and program by Les Ellingham

mode we require as a background so that ANTIC - the chip that handles the Graphics display - can set up a Display List below the new RAMTOP. By lowering RAMTOP we have in effect hidden the old display list.

### TELL ANTIC WHERE TO FIND PNG

ANTIC needs to know where we have put our Player Missiles and we tell it by using location 54279 which is known as PMBASE. The figure to use is the page number at the beginning of Player Missile Graphics. We have used the variable TOP to define the new RAMTOP and this is where our Player Missile Graphics area starts. In line 1020 we therefore POKe 54279 TOP. We also need to know the actual memory location later on and this is calculated in this line by multiplying the number of pages (TOP) by 256.

### CLEAR OUT PNG MEMORY

The memory we have reserved is probably full of unwanted data which might affect the images we are going to place there so, in line 1030, we clear this by POKing zeros in each memory location. Remember we are using 4 pages - 1024 bytes - and we must therefore POKe in 1024 zeros from the beginning of player memory which we calculated in line 1020 as PMMEM.

### SET UP INITIAL PARAMETERS

So far the steps taken have been mandatory but we now come to a point where we can choose the form our players and missiles take. When you have typed in the listing, I suggest that you experiment by changing the values in lines 1040 - 1070 to see the various effects possible.

**RESOLUTION** We have a choice between single-line resolution and double-line resolution. In single-line resolution each byte of the player image takes up one TV scan line whilst in double-line resolution two scan lines are used (giving a taller but less detailed image). For double-line resolution, location 559 should be POKed with 46 as we have done in line 1040 and the number to use for single-line resolution is 62. If you wish to see single-line resolution, you require 2048 bytes of player memory and the initial steps of reserving RAM will have to be amended accordingly.

**WIDTH** Players may be normal, double or quadruple width. Registers 53258-53268 hold the values for players 0-3. POKe with 0 or 2 for normal width, 1 for double width or 3 for quadruple width.

Normal width will do as so we POKe in the appropriate value in line 1045.

**HORIZONTAL & VERTICAL POSITIONS** In lines 1050 & 1055 we set variables for the initial positions in which we wish our images to appear. Any number between 0 and 255 may be used but only the middle range will appear on the screen. POF and PTV hold the vertical positions of our players and POX and PIX hold the horizontal positions. The precise positions that are visible may vary slightly on different TV sets so you are encouraged to experiment here with different values. In line 1060, MOY, MIV, MOX and MIX are the vertical and horizontal positions of the missiles associated with each player. Locations 53252-53255 control the horizontal position of the missiles and these are POKed in in line 1065. There are no registers for vertical positions and so we must leave this for later.

**COLOUR** Each player can be a different colour and locations 704-707 are POKed with a number representing the colour required. The number is derived from the normal SETCOLOR statement and is the Hue\*16+LUMINENCE. As we are only using two players we use only locations 704 and 705 in line 1070.

### PLACE PLAYERS/MISSILES IN MEMORY

We now come to the point where we actually place our images into the area we have reserved. This is also the point where we define the vertical positions of our players and missiles. The Player-Missile area is subdivided into six separate areas which are used - or not - for each image. Figure 1 shows the division of the area. To place Player 0 in memory we first insert the DATA representing the player shape in line 1080 and then in line 1090 we READ the DATA and POKe it into the area allowed for Player 0. This is 512 bytes up from the start of the Player-Missile area (PMMEM) and we can place the image at any position from 512 to 830 which is the upper limit for Player 0. So, line 1090 READS the DATA and POKES it, byte by byte, into the Player 0 area (PMMEM+512) at the vertical position required (POY). This procedure is repeated for Player 1 with the DATA in line 1085 and insertion of the player in line 1095. Missiles are placed similarly in the area beginning at PMMEM+384 but the procedure for defining missiles is different. Each missile can be only one or two bits wide as all four missiles are packed into

continued on page 14





## Player Missile Graphics continued from page 11

### QUICKSHOT

	Double Resolution	Single Resolution
	+1024	+2048
Player 3	+896	+1792
Player 2	+768	+1536
Player 1	+640	+1280
Player 0	+512	+1024
Missiles		
0	+384	+768
1		
2		
3		
Unused		
	Start of PMG area (PMVEN)	

Figure 1 - layout of Player Missile Graphics area

one byte. The value 15, used as the binary number to turn on the first four bits representing the missiles for Players 0 and 1. Figure 2 gives more details of turning on the various missiles.

### SET PRIORITY

Players can appear in front of or behind other players or background objects. Location 623 controls this priority and in line 1110 we set priority with the number 1 to start with as this can be changed as the program is run. When you run the program you may press any key and the contents of this location will change and be displayed enabling you to see the different priorities available.

### ACTIVATE PMG

Finally the big moment! Despite all the work so far no players or missiles will appear on the screen until you enable Player Missile Graphics. All you do is POKÉ 53277 with 3 and - provided you have got the above steps right - presto! You should have Players and Missiles.

There is much, much more to Player Missile Graphics and this article has merely served as an introduction to get you started and what your appetite in future issues we will cover vertical

The game is deliberately simple to enable you to follow the routines easily. The only new area introduced is collision detection. Locations 53258-53259 may be POKÉD to determine if a missile has hit a player. The value returned depends on which player has been hit and you can then send the program to a routine to determine the outcome of that collision. Lines 140 and 185 do this. You can also see locations 53248-53251 for missile to playfield collisions, locations 53252-53255 for player to playfield collisions and 53260-53263 for player to player collisions.

Want to play the game? You are the white cowboy and when the bell sounds you must outdraw your opponent. You can move your player right and left and fire with the trigger. Use the keyboard to set different priorities and watch how your player can move in front of or behind other objects. There are no score routines and no control of the second player, it's up to you to add these yourself. Study the listing carefully and you should be able to figure out how to move the second player and feed out where to put scoring routines.

Missile 3	Missile 2	Missile 1	Missile 0
128	64	32	16
8	4	2	1

Figure 2 - DATA for missiles. Add together numbers for missiles required. Note each missile can be either 1 or 2 bits wide.

movement and give a machine code routine for moving all four players in the meantime experiment and have fun!

### Further references

GTIA TUTORIAL - PAGE 6 Issue 2 for POKÉing values to colour registers  
 CHARACTER REDEFINITION - PAGE 6 Issue 3 for a guide to defining characters which also tells good for players  
 MEMORIES - PAGE 6 Issue 6 for an explanation of binary values  
 MAPPING THE ATARI by Ian Chadwick (COMPUTE! PUBLICATIONS) for full details of EVERY location used in Player Missile Graphics. ■

```

1 REM *****
2 REM 8          (S)SNDPT          1
3 REM 8          1
4 REM 8 4 PLAYER HORSE SHOE GAMES 1
5 REM 8          HORSE            1
6 REM 8          by Les Ellington 1
7 REM 8 Written for PAGE 4 MAGAZINE 1
8 REM *****
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10 HORSE HORSE HORSE HORSE HORSE
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100 REM HORSE HORSE HORSE HORSE HORSE

```

<p style="text-align: center;"><b>ATARI 400/800 CENTRONICS PARALLEL PRINTER INTERFACE</b></p> <p>Similar to the Atari 850 interface but without the 4 serial ports. Plugs into serial I/O socket. Requires no additional software. Includes all cables plus extension I/O socket. Only £89.95 inc VAT and postage. Send n.s.f. for full information.</p> <p style="text-align: center;">Dealer enquiries welcome</p> <p style="text-align: center;"><b>BLACKTHORN ELECTRONICS</b> Arling Road, Geddes, Colchester, Essex</p>	<p style="text-align: center;"><b>ATARI 400/800 CENTRONICS TYPE INTERFACES</b></p> <div style="text-align: right;"></div> <p>MKI works with LPRINT LIST P* and has own copy routine - works with 80% of software - cassette and disk JUST £39</p> <p>MKI fully compatible with VISICALC, WORD WIZARD and similar to ATARI 850 but with only one Serial Port JUST £70</p> <p style="text-align: center;">Prices include VAT and P.P.S. delivery</p> <p style="text-align: center;"><b>MICRO RESEARCH LTD. FREEPOST INDUSTRIAL UNIT 8 KNIGHTSBRIDGE EAST LIVINGSTON WEST LOTHIAN EH46 8BB Tel. (0208) 31403</b></p>
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# The GOLDEN BATON

From CHANNEL 8 SOFTWARE

**MYSTERIOUS ADVENTURES No.1**



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AND  
COMM  
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## Programming

# Graphics 8 Text

John Hulme, London

When I used to look at pictures of the display from some monitor which allow free mixing of text and graphics I often used to feel a twinge of envy as this did not seem possible on my Atan. I could have used a modified display list but the text and graphics would still have been on separate lines. Phil Griffin's article on Memory Mapped Screens (issues 4 and 5) gave me an idea of how to do it and, to my great surprise, the program which emerged proved to be both simple and short.

The graph program with this article gives a practical example of mixed graphics and text in Graphics Mode 8. The graph is meant to represent a gravity well with the Earth at its centre but the interest to most programmers will be the labelling of the axes.

What the program does is to copy the character data stored in ROM starting at address \$7344 and PEEK it directly onto the screen. Each character is stored as eight numbers between 0 and 255 and the number is converted to binary and displayed with a 1 indicating a pixel illuminated and a 0 indicating a pixel extinguished. The character is made up of eight such rows. Phil Griffin's article in issue 5 demonstrated how screen data is stored in the same way in Graphics 4, 6 and 8.

GRAPHICS MODE	COLUMNS	ROWS (Spin screen)	ROWS (Full screen)
4	10	40	40
6	30	80	80
8	40	160	160

Figure 1

In order to find the character you want look at table 9.6 of the ATARI BASIC REFERENCE MANUAL. For example, character number 2 is the quotation mark and this character starts at \$7344+2\*8+0 because of the eight items of data per character. The placement of the character is done by adding the appropriate position to the start of screen memory which is found by PEEK(88)-PEEK(89)\*256. The number to be added is the row which you require multiplied by the number of columns supported by your Graphics mode (figure 1). To translate this to English, or rather Basic, see listing 1 which PEEKs character number 2 onto a graphics screen in mode 8.

```

1 REM SIMPLE EXAMPLE TO PEEK QUOTE
  QUOTATION MARKS ON SCREEN
2 GRAPHICS 8+16:PF=57344:SP=PEEK(88)+25
3 PEEK(89)*8+(16*COL)
4 FOR I=0 TO 7
5   POKI SP+(16*80)+(ROW)*8+C,PEEK(I)+128
6
7
8 NEXT I
9 GOTO 58

```

In line 10 R is the required row and C is the required column.

In line 30 P\*80 places each item of character data beneath the previous one and the multiplier should be varied according to the graphics mode (see figure 1).

A similar technique can be used for Graphics 3, 6 and 7 to produce multi-coloured text but you will have to design your own character set because of the different way in which screen data is stored. I presume that data is stored in the same way as for ANTIC modes 4 and 6 but I have to leave that for you to discover as I only have a black and white set.

```

1 REM *****
2 REM 8 TEXT ON GRAPHICS 8 SCREEN 8
3 REM 8 BY 8
4 REM 8 JOHN HULME 8
5 REM *****
6 REM
7 GRAPHICS 8+16:POKE 738,8:PF=57344:SP=
8 PEEK(88)+256:PEEK(89):GOTO 288
9 REM - SUBROUTINE TO PEEK CHARACTER
  ONTO SCREEN
10 FOR I=0 TO 7
11   POKI SP+(16*80)+C,PEEK(I)+14080
12 NEXT I
13 RETURN
14 REM - TEXT DATA
15 C=34:PF=2
16 FOR T=0 TO 28
17   READ A
18   DATA 39,114,97,113,94,8,111,182,8
19   DATA 20,14,24,17,15,128,42,88,11,1
20   DATA 21,42,38
21   GOSUB 188
22   C=C+1:NEXT T
23   GOSUB 188
24   C=34:PF=2
25   FOR T=0 TO 28

```

```

320 READ A
330 DATA 120,124,20,56,41,20
340 GOSUB 140
350 R=R+1;NEXT T
400 C=12:R=120
410 FOR T=0 TO 5
420 READ A
430 DATA 121,13,20,54,41,50
440 GOSUB 140
450 D=C+1
460 NEXT T
500 C=12:R=20
510 FOR T=0 TO 5
520 READ A
530 DATA 122,15,20,54,41,51
540 GOSUB 140
550 D=C+1;R=R-8
560 NEXT T
990 GOTO 990
999 REM - ORIGIN ORIGIN
1000 COLOR 1
1010 FOR Y=30 TO -2 STEP -8:G
1020 FOR X=10 TO -10 STEP -1
1030 TRAP 999
1040 P=C<>D;D1=(X^2+Y^2)^(.5)+40+Y/4
1045 IF X=20 THEN PLOT (X-Y)84+170,P+3
G:GOTO 1070
1050 DRAWTO (X-Y)84+170,P+30
1060 IF X=-10 AND Y=-2 THEN RETURN
1070 NEXT X
1080 NEXT Y
1090 DRAWTO (X-Y)84+170,170
1100 GOTO 1070

```

## Listing Conventions

As far as possible, the listings will be 35 characters wide to allow you to match up to the screen, but where control characters are explained in a line this will not be possible.

Three types of characters are difficult to reproduce in a listing—Inverse, Control and Inverse Control.

**INVERSE**—all characters to be typed in inverse are underlined.

**CONTROL**—characters which require the CTRL key to be pressed are shown in square brackets [ ] Press CTRL and the key shown in the bracket. Characters which require the ESC key to be pressed first will show ESC, CTRL, followed by

## CONTACT

**PLANETFALL** Can anyone tell Michael Jackson how to get past the mutant-infested Bio-Lab? If so give him a ring on 01 560 0932 or write to 63, Brewer's Gardens, London, W10 6AD.

### SANDS OF EGYPT.

The ladder can be GOT  
The torch will  
Can I get back through the CRACK with it  
Must I take it and how?  
Anyone in there, out there?  
HELP! I'm on my own. Alas!

Frustrated in real-time: David Will Henderson, 2, Gunpowder Bank, Tweedbank, Galashiels, Selkirk, TD1 3SE. Please write.

**COMPUTE BACK ISSUES: CH7 TECH M FIRST** is missing out. Can anyone help? Write to CH7 TECH M Post, SQTS NISS, RAF KINLOSS, FORRES MORAY IV36 0WH.

**GOLDEN BATON** I know that the yellow crab likes salted slugs but how do you give them to the crab so that you can pass on to the lake? John Dwyer, 71, Duncan Drive, Elgin, Moray, IV30 2NH. Tel: 0343 44695.

**CRAWLEY MANOR** I've got through the plywood hall, through the dial door and wandered around but nothing. What am I doing wrong? Also John Dwyer.

**810 DRIVE WANTED** Has anyone got an 810 that they could let me have very cheaply. I need it to assist with the subscription database and as a back up in case anything goes wrong with my drive. If it does goodness knows how you will get your next copy of PAGE 01.

Les Ellingham

a word or words to describe the key to be pressed. You may have to refer to your Basic Reference Manual if you do not understand some of the keys.

**INVERSE CONTROL**—characters will be shown in pointed brackets <>. Follow the instructions for control characters but press the Atari key first.

The listings should be typed as accurately as possible and **MUST** be typed exactly if TYPO is used to check them.

All programs featured in PAGE 5 will run in 10K, unless otherwise stated.

# THE HARD(WARE) FACTS

## EVERYTHING YOUR WANTED TO KNOW ABOUT YOUR ATARI BUT WERE AFRAID TO ASK (PART 1)

We are pleased to welcome John J. Smith to our pages with a regular column on hardware. John's articles will feature a mixture of hard facts, ideas and projects. You will be shown inside the 800 and find out what is made a cartridge among many other things in future *Hardware Facts*.

### JOYSTICK PORTS:

The first thing most people seem to want to know is what you can plug in to the I/O ports on the front of the Atari 800. The answer is many things but in order to do so, especially if you build something yourself, you will need to know what the pin connections are. Figure 1 shows the pin connections of port 1 and the remaining ports are the same. It is important to note that the connections shown are exactly as you see them when sitting in front of the computer. The connections on the computer are plugs with pins (male) and if you want to connect something you will need female sockets. These are called 9 way D type connectors and manufacturers seem to call them DB9S connectors. You will most probably get them from your local shop, if you have one, or by mail order and everyone seems to have their own part numbers. One source of supply is Maplin Electronics, P O Box 3, Rayleigh, Essex and their part number for the 9 way sockets is RK51N. I suggest that you also use covers to hide the wires and solder connectors and the Maplin part number is RK 52S. These are sometimes known as 'hoods'.



Figure 1 - controller port connector

- Pin 1 Joystick - forward
- Pin 2 Joystick - back
- Pin 3 Joystick - left
- Pin 4 Joystick - right
- Pin 5 B paddle (potentiometer) input
- Pin 6 Trigger input
- Pin 7 5 volts available
- Pin 8 Ground (Earth)
- Pin 9 A paddle (potentiometer) input

Now that you know what the I/O port connections are maybe you want to build something to plug in. Let's start with something simple as even I have not yet figured out how to build a trackball! When I do I will let you have details. How about a joystick? At first this seems a good idea but if you are a real beginner, even this can be a challenge as you have to get the lever to pivot in all directions without falling apart. No, for your first project I would suggest a simple push-button cursor control to provide similar controls to a joystick (Up, Down, Left, Right and Fire). Five separate push buttons are required and the wiring diagram for these is shown in Figure 2.



Figure 2

Note that pin 6 is common to all five push buttons and that pins 7, 8 & 9 are unused so that you only need a six way cable for wiring. One possible suggestion for mounting is to use a small handy sized box and mount the buttons as shown in figure 3. A plastic ring can cover buttons A, B, D and E so that a rocking action can be used. How you achieve the final design is up to you!



Figure 3



Figure 4 - MXBD connection

## A PRINTER CONNECTION

Most people think that these 9 pin controller ports can only be used with joysticks and paddles. Not so! For instance if you want to connect a printer, say an Epson MX80 which has a Centronics interface, this can be connected to ports 3 and 4 as shown in Figure 4. To protect the Atari it is suggested that transistors be connected to each of the ten wires going to it. All you have to do is connect the base to Atari, collector to ground and emitter to MXBD using PNP transistors 2N220/A. I know that there are more than 10 wires but you do not have to protect the ground wires. Figure 5 shows the transistor for those of you who do not know their emitter from their elbow.



Figure 5 - Lead identification

For ease of construction a Veroboard is suggested and with the tracks put in the right place this gives a fairly neat layout but a printed circuit is to be preferred. Again actual construction space is left to the individual due to lack of space in this column.

Finally the bad news! You will have to write your own software to drive the printer or it will just sit there and do nothing. With all you software experts out there, it should not prove too difficult and when you have written a suitable program please let PAGE 5 know about it.

## a regular column by John J. Smith

### A BETTER PICTURE?

It seems that some people may have a colour TV which does not give an entirely correct colour as produced by the Atari. If you are happy with the normal TV picture but not with the colour produced by the computer make sure firstly that the channel used by the computer is properly fine-tuned. If you are still not happy then you may adjust R309 on the Atari - the 'colour adjustment potentiometer'. The trick is finding it! This control is accessible by removing the top plastic cover of the machine revealing the large metal dust-coat into which the RAMs/ROMs are plugged. Looking at the computer from the back, i.e. with the keyboard away from you, there is a small hole at the upper right hand side on the rear of the dust-coat block. You can access R309 with a small insulated screw-driver through this hole. As the control is pre-set by the factory it should be OK with most TVs so if you are already getting a good picture do not fiddle you will only make things worse. If your picture is bad, what are you losing? Please remember though to adjust the TV first before suspecting the computer.



If you are fortunate enough to have one of those TV sets with a 9 pin video socket, you can connect the Atari 800 directly to the instead of the aerial socket and get monitor quality.

If you have genuine monitor, you can also use this system and you can also have hi-fi sound!

Next issue - a look inside a cartridge and a look inside your 800

# Return Key Mode ....

article: Les Ellingham

Would you believe that a home computer could write its own programs or automatically add to a program you have written? Ask any other computer owner if this is possible and they will probably tell you it is not, but you bought the best and one of the many unique features of the Atan is what is termed the Return Key Mode or Forced Read Mode. This facility allows you to write a program that can automatically add to itself or delete parts of the original program.

John Poynter's program accompanying this article shows a practical demonstration of the feature by providing a Data file that will automatically extend itself as more data is input, but before looking at the program let's see what the Return Key Mode is.

Only one memory location is involved and we must POKE this to achieve the desired result. The location is 842 which is part of the Input/Output Control Block (IOCB) area which is normally used for the screen editor. The content of this location is usually 12 which will cause input to be read from the keyboard and written to the screen. If however we POKE this location with 13 the IOCB will then read from the screen and will treat the screen as an input device just the same as the keyboard. What happens in effect is that the computer automatically processes the RETURN key for you and enters all the information displayed on the screen.

Only three simple steps are required to use this facility:

1. POSITION the cursor at the top of the data you wish to enter.
2. POKE location 842 13.
3. Reset location 842 and CONTINUE the program.

## ADDING LINES

Let's look first at Example 1 to see how simple it is to use the Return Key Mode. Type in the program, LIST it out and then RUN it. Amazing isn't it? Line 10 simply clears the screen and line 100 prints out the lines you are going to enter; note the POSITION statement which we will come to later. Line 110 prints CONT at the bottom of the screen so that when the Return Key Mode is activated, it will execute this command and continue the program. Line 120 positions the cursor at the top of the screen ready for the Return Key Mode which is activated by the POKE in line 130. Line 130 also STOPS the program which is essential for the

Return Key Mode to operate. Line 140 resets location 842 to accept normal input from the keyboard and line 150 is a simple delay loop before line 160 clears the screen and LISTs out your revised program.

```
10 ? CHR$(128)
100 POSITION 2,4:FOR I=20 TO 98 STEP 1
  91? 1; " REM NOW LINES HERE";NEXT I
110 POSITION 2,32: ? "CONT"
120 POSITION 2,8
130 POKE 842,13:STOP
140 POKE 842,12
150 FOR M=1 TO 200:NEXT M
160 ? CHR$(123):GOTO 10
```

The routine is short and simple but there are one or two ground rules which must be followed. The cursor must be placed above the lines you wish to enter but you must also allow sufficient space for the message STOPPED AT LINE xxx which will be printed after the STOP command. If for instance your lines were printed at position 2,0, the STOPPED message would overwrite them giving an error. This is why line 100 commences with POSITION 2,4. Secondly the CONT command must follow the lines you wish to enter but does not need to follow immediately. I have placed the CONT command near the bottom of the screen to allow a varied number of lines to be inserted. There is a limit to the number of lines which can be entered at one time as they must appear on the screen between the STOP message and the CONT command but of course there is no reason why the routine cannot be called a number of times.

## DELETING LINES

So how do we delete part of the program? Simple we just list out the line numbers just as we would in direct editing. RUN example 1 and then change line 100 to:

```
100 POSITION 2,4:FOR J=20 TO 98 STEP 1
  91? J:NEXT J
```

RUN it again and your newly added lines are GONE.

## THE SECRET METHOD

One drawback of the example given is that you can see the lines being listed out and it looks untidy and will look rather strange in the middle of a program. The simple way to disguise this is to set the colour of the text to the same colour as the





Review

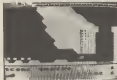
# WARLOCK

Calisto Software

1 PLAYER

32K/48K

What can I say? After having a pre-release copy of this superb game for over a month now, I can say without hesitation that *Warlock* is the best game to have been released by a British software house. What is more it has been written by a British programmer. The chap involved is Dave Thomas, a southern lad, who has proved once and for all that it is possible to write games that are up to, if not better than, SYNAPSE standard. I understand that Dave wrote the game during two and a half months last summer and he has shown us that it can be done. Take a note of the name for you will surely be hearing a lot of it in the future.



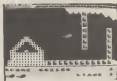
from here...

The object of the game is simple. You must reach and rescue a small pod-shaped craft called a DRONE and get back to the point at which you started. Sounds simple but in fact this is one of the most challenging arcade scrolling games that I have come across.

The game consists of four options: five skill levels and four different landscapes. The ship is the best I have seen in a game of this sort and joystick response is extremely good. You start the game with 3 ships and no bonus ones are awarded. To

pause the game action the player may press SELECT during play. Rapid fire is possible by holding the trigger down and, believe me it is needed! As you increase the skill level from 1 to 5, your energy is used up faster.

On pressing START the screen depicts your craft descending from the great beyond onto a landing pad which then descends into the ground where your energy is boosted to full capacity. The scrolling landscape is from left to right and to reach your objective, you must negotiate pods rising from the floor - they cannot be destroyed - mines suspended from the roof of the cavern, laser barriers the conventional blocks of flux and various tricky passages. All in all very difficult to steer your craft from beginning to end. Once you have reached the DRONE you must reverse the process to return to the start.



to here... and back!

When you reach the pad where you started your mission, the next stage is automatically loaded from disk but on the cassette version a password is given to enable the next cavern to be loaded. The going gets tougher as you progress and I can honestly say that I have only managed to get to the DRONE on the second stage. With the review copy however was a version with no collision detection, so I have seen what is to come on levels 3 and 4 and believe me it is going to be a long time before ANYONE completes this one!

Scrolling is very smooth indeed and Dave makes good use of the Atari's superb graphics to achieve THE best game available for £14.95. I can recommend this game without hesitation.

Reviewed by

Steve Gould

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- Unlimited
- 300 words to try

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 Review for the 50 words included  
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- Drawing
- Dictionary
- Interactive
- Includes your word game

**ES-60**

Always use the field or cassette info and register this Atari disk. SOFTSWOT is a registered trademark of K&S Computer Systems.

DEMO 21 continued from page 18

```

1000 001
1010 0000 1000100000000000000000
1020 1010000 712,10000
1030 000 000 00 10 000 10000000000
0 000 0 0000 0000 0000000000000000
1040 000 0,10100000 0,10100000 0,0000
0000000 000 0000
1050 0000 0000 0000
1060 0000 1000 0000 1000 0000
1070 0000 1000 0000 1000 0000
1080 0000 1000 0000 1000 0000
1090 0000 1000 0000 1000 0000
1100 0000 1000 0000 1000 0000
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1200 0000 1000 0000 1000 0000
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1950 0000 1000 0000 1000 0000
1960 0000 1000 0000 1000 0000
1970 0000 1000 0000 1000 0000
1980 0000 1000 0000 1000 0000
1990 0000 1000 0000 1000 0000
2000 0000 1000 0000 1000 0000
    
```



```

2010 000 000 00 10 000 10000000000
0000000000000000000000000000000000
2020 000 0,10100000 0,10100000 0,0000
0000000 000 0000
2030 0000 0000 0000 0000 0000
2040 0000 1000 0000 1000 0000
2050 0000 1000 0000 1000 0000
2060 0000 1000 0000 1000 0000
2070 0000 1000 0000 1000 0000
2080 0000 1000 0000 1000 0000
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68 PLOT FLX,PLY,DRAGD DRX1,DRY1;DRAGD  
D DRX2,DRY2

78 POSITION POGX,POGY;REN 4TH POINT  
HD/HDG ANTI-CLOCKWISE

88 POKE 745,COL;REN FILL COL. FROM  
FIRST DATA NUMBER

98 X10 38,84,8,8,"3"

998 BSTD 30

118 REN DATA AREA DATA AREA DATA AREA

999 DATA 1,33,33,34,27,26,27,23,33,-9

518 DATA 1,33,49,33,34,23,24,23,49,-9

528 DATA 2,33,89,33,34,23,24,23,89,-9

538 DATA 1,34,97,33,89,23,89,24,97,-9

549 DATA 1,34,143,34,79,24,99,24,143,-  
9

559 DATA 1,33,156,83,144,24,144,27,156  
,-9

568 DATA 8,33,385,33,157,48,157,48,185  
,-9

578 DATA 8,32,385,32,157,27,157,27,185  
,-9

579 DATA 6,48,23,48,14,44,14,44,23,-9

577 DATA 3,33,23,33,14,31,14,31,33,-9

588 DATA 7,79,199,79,185,8,185,8,199,-  
9

593 DATA 8,8,8,8,8,8,8,8,-4

598 COLOR 4;REN H.LIGHTS PLOT,DRAG  
OVER X10 FILL

688 FOR HL=1 TO 11

685 PLOT 24,117\*HL;DRAGD 38,117\*HL

618 PLOT 38,117\*HL;DRAGD 34,117\*HL

615 NEXT HL

628 COLOR 8

625 FOR SR=1 TO 38 STEP 5;REN GRILL

628 PLOT 32,112+SR;DRAGD 32,587+SR;DR  
AGD 48,187+SR;DRAGD 48,112+SR

648 NEXT SR

658 PLOT 25,37;DRAGD 35,37;PLOT 34,98  
;DRAGD 54,98;PLOT 24,143;DRAGD 34,14  
3

678 COLOR 5;PLOT 54,127;DRAGD 54,117;  
PLOT 34,127;DRAGD 34,117

688 COLOR 1;PLOT 25,87;DRAGD 25,49

693 PLOT 48,87;DRAGD 48,49

698 PLOT 35,87;DRAGD 35,49

670 REM 8888 SOUND LOOP ONE 8888

788 FOR S1R=1 TO 18

782 POKE 747,888+94;REN LOOP COLOUR  
8888;REN IN 8888;REN

793 SOUND 8,32,18,14

794 SOUND 3,288,12,12

718 NEXT S1R;SOUND 8,8,8,8

715 REM 8888 SOUND LOOP TWO 8888

728 FOR S2R=1 TO 18

722 POKE 718,S2R+112;REN LOOP COLOUR  
8888;REN IN 8888;REN

723 SOUND 1,47,18,14

728 POKE 728,S2R+248;REN LOOP COLOUR

788 NEXT S2R;SOUND 3,8,8,8;SOUND 788

818 REM END 818 END 818 END 818 END

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## THE SOFTWARE REVIEWS

Program	Manufacturer	Memory	Players	Price
TAROT CARD	English Software Co	16/48K	Any	£12.95
AIRSTRIKE 2	English Software Co	16/32K	1/2	£9.95
HYPERBLAST	English Software Co	32K	1/2	£9.95
JET BOOT JACK	English Software Co	32K	1/2	£9.95
CAPTAIN STICKY'S GOLD	English Software Co	16/32K	1/2	£8.95
BOMBASTIC	English Software Co	16K	1/2	£9.95
BATTY BUILDERS	English Software Co	16K	1	£9.95
CAVERUNNER	English Software Co	32K	1	£9.95
SHATABLAST	L.R.D. Ltd	16K	1	£9.95
GIANT SLALOM	Arborex	16K	2/9	£7.50
SPACE TRAP	Arborex	16K	1	£7.50
CRAZITACK	Arborex	16K	1	£7.50
GEOGRADUIZ - U.K.	Softow Software	16K	1/2	£6.50
GEOGRADUIZ - U.S.A.	Softow Software	16K	1/2	£6.50
LEGGITT	Images	16K	1/2	£5.90

The *Software Review* table on a different format this issue to bring you reviews of *about* new programs all but one of which can be purchased for less than £10. Read on to see if you can still get good value at low prices for your Atari.

Top of the list for Atari software is English Software Co who have eight recently released titles. **TAROT CARD** should not strictly be included being priced at £12.95 but this does include a book on the Tarot. Not just a few flimsy pages but a genuine Penguin paperback. Tarot Card begins with a neat opening sequence before showing you three cards, from which you must choose the one with which you feel most affinity. You are then invited to ask a question that you want the Tarot to answer and the cards are dealt and your reading is given. As each card is dealt, its characteristics are revealed and at the end of the reading your question is reported with the Tarot's conclusion. There are two versions on the tape, 16K and 48K with fewer cards in the 16K version which would not please those with a serious interest in the Tarot! Certainly a very different and interesting program and great fun. At least it answered my question in the way I wanted! **AIRSTRIKE 2** is just what it says, a follow up to one of the most successful Atari titles. The format is the same although there are naturally many improvements. This one is easier to play than the original which in my opinion is a vast improvement as **AIRSTRIKE** varied on the impossible for many reasons! The familiar scrolling cavern is there but there are now options to enter caverns below the main one thus allowing several different ways through. Bomb control is now by joystick, although you may still choose the spacebar as an alternative,

but it is fairly difficult to get used to. You must push the joystick up at the same time as pressing the fire button which if you are not careful will see you crashing into the roof. There are five skill levels and again 16K and 32K versions on one tape. The 32K version has a radar scanner similar to Defender to show you where you are in the cavern. One super innovation from English Software is the provision of new landscapes to load into the game if you become tired of the original. For only £4.95 you may purchase a data cassette which allows you to load in two new landscapes. The disk version costs £8.95 and has four new landscapes. A great idea. **HYPERBLAST** is in the Galaxian vein and looks good as the aliens burst upon your screen. There is a scrolling starfield and ten waves of flying creatures to destroy before the next set of creatures with different movement patterns appear. These creatures are not in the familiar formation but dance and fly all around the screen. Your ship is moved along the bottom of the screen and you have a cannon cannon and two wing missiles with which to shoot. As you hit a creature it releases a flurry of bombs which increase in number as the game goes on and you must avoid these. There are three difficulty levels which will provide you with plenty of challenge. **JET BOOT JACK** is probably the pick of the bunch. It is a multi-screen jumping game with lifts and conveyors and nasty bugs and gremlins. The theme is quite original and features Jet Boot Jack as a space gip

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# Adventure

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## Reviewed by Les Ellingham

jogger (complete with Sony Walkman!) opening around a record pressing plant collecting stray musical notes. No ordinary jogger is Jack for his boots are rocket propelled and he must not let it be his gas. Death comes to Jack in many guises from falling into open shafts, cracking his head on projections from the ceiling, getting crushed by a moving platform, eaten by a nastic or just running out of fuel. There are ten different screens with the option to jump ahead only after you have completed that screen. Although on a now familiar theme the unique story line and good programming makes Jet (loot Jack well worth getting. The music is good and the scrolled opening credits are superb. **CAPTAIN STICKY'S GOLD** comes next and has some really superb title music. The game however did not seem quite up to the excitement of the opening credits and music although it is still quite playable. The action takes place underwater and you have to lower Captain Sticky on a rope to retrieve gold bars from the ocean bed. As well as watching your air supply you must keep an eye on the creatures of the deep which you can fight off with your harpoon gun. Each dive is timed and you must resurface for fresh air or suffer a watery death. Points are scored by harpooning shoals of fish as well as recovering gold and there are eight levels to complete before moving on to the next of eight zones. Somehow this one did not seem as exciting as the others but the theme is certainly different and you may enjoy it just for that. It is worth getting for the music which, as I have said is really great. **BOMBASTIC** is a throw back to the early days of Breakout and Pang and is basically a two player game, although one can play against the computer. The object is to shoot at floating blocks to prevent them from reaching your side of the screen. The blocks are harmless until they start flashing when they will destroy part of your detector well. The idea is to push them towards your opponent's wall just before they begin to flash so that they can do their damage there. The simple themes often make the best games and Bombastic is, despite its simplicity, very addictive requiring both strategy and quick action. An ideal game for two players and a refreshing change from the search for ever more involved themes. **BATTY BUILDERS** seems at first to be too simple requiring you to just catch falling bricks and then throw them back up to build a wall. The first level is fairly easy, although you must think carefully to gain maximum points, but thereafter it becomes very hard as you have to dodge fast moving obstacles whilst at the same time trying to catch the bricks. The brick supply scrolls across the top of the screen in beautifully smooth motion and the

bricks drop at random. Once caught you can move to a chosen position to throw them up. Catch them carefully though for death in this one is literally splattering and will give me quite a fright each time I play! And so we come to **CAVERUNNER**. Games can't all be good can they! After all the above Caverunner is a disappointment being extremely frustrating to play and a little slow with the monotonous death march being talked out in a single scolded word every few seconds as you die. This is the only one of the English Software releases that requires Basic to load and it shows in comparison to the rest. The object is to run through various caves avoiding green slime, water and various obstacles to reach hidden treasures. Each screen requires you to run from side to side descending a level at a time. I must confess that I never got past the first screen and gave up very quickly. Maybe this one requires a great deal of patience or maybe it was just that the others were so good making a fair judgement difficult.

**SHATABLAST** is from a newcomer to Atari software L.S.D. Ltd and there are one or two rough edges such as the attract mode not being disabled which shows that this is a first release for the Atari. At first sight the graphics look disappointing being a stationary view from the turret of a defence ship to outer space but the game comes alive as you play it. You must defend your planet from a gauged missile attack from an enemy Battle Star which launches fast and furious salvoes at you. You have a cross sight and must line this up on the incoming missiles to shoot them down whilst at the same time avoiding your own orbiting satellites. The trajectory of the missile homing is as you is excellent and this is the part that makes the game quite a challenge. Forget the somewhat blocky graphics and simple titles and concentrate instead on those homing missiles which will give you a good run for your money.

Atari Data Services' **FIRST GAME SERIES** is a re-release of early titles for the Atari which in their time were state of the art games but which have now been overtaken by the many games available in machine language. At £7.50 each the series is among the cheapest available for the Atari and they have been re-released to give you more games for your collection without emptying your pocket. **SPACE TRAP** has your small craft inside a black hole where you must shoot as many enemy craft as possible before the hole closes in on you. Hitting the walls or an enemy craft will lose you points and you may run out of fuel. There is no end objective, just get the highest score possible. **CRAZITACK**



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## Beginners

# First Steps

Mark Hutchison, Belfast

I would firstly like to thank all of the people who wrote to me, especially those who enclosed a *z* file. The majority of questions concerned GRAPHICS which I will not include here as it is just too big a subject. Watch out though for future developments. Let's take a mixed bag of questions that have arisen.

If you have a 10K system then memory is at a premium so why not have great graphics and sound in an intro display and have the intro load the main program? The second program will clear out the first. Save your programs using SAVE *C*, and then use RUN *C* to load and RUN in one go. This type of RUN looks to see if the RETURN key has been pressed so we put 12 (RETURN key) into location 784 (last key pressed). The last line of your first program must be

POKE 784,12:RUN *C*

You may find that any number less than 255, i.e. any key pressed, will do but better safe than sorry.

Why use LET when *S* 100 does just as well? When writing a program you should use REMs normally on lines that end in *S* and name your subroutines, for instance, GOSUB SOUND. Using SOUND 100 however will bring up an error as SOUND is a command. The answer is LET SOUND 100. Probably *S* 100 was used first and LET was added to allow commands to be used as variables. If so, then a good afterthought (elects Wilkinson and Co).

PEEK and POKE still cause a bit of trouble. What does POKE 108 (PEEK 108)-8 mean? 108 is the location that tells you the top of memory in pages (a page is 256 bytes) (P (PEEK 108) tells us how many pages are available. P-8 means we wish to reserve 8 pages for our use. Now we put this new figure into 108 so that the computer knows not to go higher, POKE 108,P-8. As you can see this has taken two commands whereas POKE 108, PEEK 108)-8 is only one - a memory saver.

A POINTER is a location that holds the address of another location usually in ROM which you cannot amend. Every time the computer wants to change your keystroke into a character it will go to 786 and normally find 224. Now, 224\*256=5744 (Why? Surely you have read that excellent article *Memories*!) which is where the character set resides in ROM. If you save a bit of memory by

lowering RAMTOP (as explained above) and change 786 by POKE 786 (PEEK 108) then the computer will be directed to the new address and remove your very own character set if you have stored it there. A bit like changing a road sign. Note that a GRAPHICS call will test the POINTER.

Did you know that the whole of the Galacto Map on Star Raiders is redefined characters? The secret slipped out when I removed the cartridge from an XL.

If any readers have seen the COMMANDER 2400 keyboard advertised in *American magazine*, I can confirm it to be an excellent and worthwhile, albeit expensive, purchase. No matter what Jackie from Germany thinks, I will stick sorry 48K 400!

I was asked by John Tolen why his variables should all suddenly appear as PMSBASE. This reminded me of *The Crypts of Terror*. When you BREAK and LIST the intro, it comes out as graphics garbage. On investigation it seems that locations 130 and 131 hold the secret. These are variable name table pointers. If you POKE a number here and list your program, strange things occur. Your program runs because it has been set up in memory but you will get errors when you orient because poor Atan cannot understand the garbage. Pretty good in-home protection! Of course this is not the answer to the original question but it held my attention for hours.

Finally Les Lawson asked me what CTRL-3 is for. This caused a problem which turned into an embarrassment. CTRL-3 is an End-of-File marker and I could not think why it should be on a keyboard. Quite obvious if I had read my DOS manual! You can directly create a file on disk from the screen by first opening a file OPEN #1,8,0, D:FILEDATA, and then using DOS option C - Copy File - and E, D:FILEDATA. Just type your date and when you have finished use CTRL-3 for the EOF marker.

Finally (really) our Editor limits my space! The time between receiving your letters and the printing of the columns could involve two issues so if you want an earlier reply, please enclose a stamped addressed envelope.

Mark has answered many readers' question direct. Write to him at SAUG Software, P O Box 133, Belfast, N.Ireland, BT10 0DB.

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The TYPO TABLES are provided to help you ensure that the listings you type in are correct. You will require the TYPO program from issue 5 which gives full details of how to use these tables.

## TYPO TABLES

### MODE 21

Variable decodes = 27287

Line no range	Code	Length
1 - 26	80	548
44 - 126	26	510
144 - 246	A6	524
224 - 346	2E	580
256 - 446	0E	584
414 - 546	26	614
514 - 596	26	540
570 - 676	6E	526
746 - 776	60	547
786 - 876	2E	501
844 - 926	F2	545
946 - 976	67	526
1046 - 1026	2E	525
1036 - 1216	PL	591
1226 - 1276	JT	547
1286 - 1416	6D	511
1426 - 1496	04	591
1586 - 1576	66	546
1446 - 1716	6F	544
1726 - 1816	62	571
1826 - 1926	79	570
1946 - 2046	L6	525
2056 - 2066	F2	583

### HILONEST

Variable decodes = 31726

Line no range	Code	Length
1 - 66	8E	445
176 - 226	66	505
236 - 316	0E	585
326 - 406	PL	585
446 - 546	6E	587
556 - 646	L7	577
656 - 766	16	585
776 - 796	6E	526
806 - 946	6E	581
916 - 1016	LJ	544
1026 - 1126	WJ	526
1036 - 1176	6F	517
1206 - 1256	J1	526
1266 - 1346	04	524
1356 - 1406	0E	526

NOTE: AS LINE NUMBERS  
ADDDC 32888 CLASH WITH  
TYPO, DELETE LINES  
32888 - 32826 BEFORE  
RUNNING TYPO. CHECK  
THESE LINES CAREFULLY  
AND THEN ADD THEM BACK  
TO THE CHECKED LISTING

### 600 CROSSIT

Variable decodes = 48188

Line no range	Code	Length
1 - 26	6F	414
26 - 126	0C	581
126 - 186	64	504
176 - 266	07	461
276 - 326	02	566
336 - 416	7E	511
426 - 486	0F	456
496 - 1246	6E	124

### FORE ENGINE

Variable decodes = 38624

Line no range	Code	Length
1 - 21	66	425
32 - 76	F2	425
86 - 226	60	404
236 - 426	7E	444
436 - 764	02	524
774 - 816	62	524





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## Peripherals

# Make Your 410 Work!

John Dimmer, Elgin, Scotland

Like the majority of Atari owners my system is cassette based so when my 410 went wrong I was virtually computerless since all of my games were on cassette and it seemed pointless typing in my long programs. This situation lasted four weeks and I spent my time reading about hardware and programming. What follows is a summary of that reading regarding the 410 in the hope that you will be able to get better service from your 410. These remarks will of course apply equally to the new 1010 recorder.

There are six relevant commands for the operation of the 410:

Recording	CSAVE	SAVE C	LISTC
Playback	CLOAD	LOAD C	ENTER C

CSAVE/SAVE C uses a short unformatted gap (IRG) and this is the quickest way to record and playback.

SAVE C uses a longer IRG which results in a long tape. You can load the tape using CLOAD, CLOAD C or, more interestingly, RUN C. LISTC stores the program in its full ASCII form its counterpart is ENTER C. This command, unlike CLOAD or CLOAD C will not clear any resident program from RAM and if lines have the same number the old line will be replaced by a new line. LISTC will save all lines whilst LIST C .xy will save line x to line y.

Both CSAVE and SAVE C use a shortened form of the Basic program by tokenising. A token is a 1 or 2 byte code representing the Basic keyword.

### USEFUL POKES

POKE 65,0 for quiet recording or playback  
 POKE 54018,52 to turn cassette motor on  
 POKE 54018,60 turns the motor off

Try putting a music cassette in the 410, press play and type POKE 54018,52. Music while you wait!

Here are a number of tips which might help towards trouble free recording and playback.

Before you CSAVE or SAVE C, type LPRINT in direct mode. Ignore the resulting Error 138. This

closes channel 7 and sets the hardware correctly for recording.

Before pressing PLAY, note the reel count. If there is an error on playback, rewind to the count plus one and try again. Repeat as necessary.

If you are unsure of the start position of the program enter use POKE 54018,52 or use a normal cassette player to listen for the start of recording.

Try fast forward and rewind if you have an error on loading. Then try to load again.

Use 10 counts to separate programs on tape. This is to avoid overwriting the end-of-file marker and will make it easier to find the start of the recording.

Avoid using C-90, C-120 or cheap tape as you are more likely to get tape stretch.

Don't use chromium dioxide or metal tapes on the 410 - you will run the heads!

Don't put recorded tapes on top of the TV or speakers - the tapes could be degaussed.

Recordings on the old type 410 may not play back on the new type 410 and vice-versa. Beware!

Clean the record and play heads regularly using a proprietary cleaner only.

Finally if you continually have 138, 140 or 143 errors on all your tapes, have your 410 checked by an Atari dealer.

### ERRORS

The three common types of I/O errors are:

Error 143 - a bad recording or readback or the cassette or cassette may be faulty or defective.  
 Error 140 - cassette may be faulty or defective.  
 Error 138 - no information reaching the computer. Check cable connections, power supplies and finally the tape for data.

All the people I know who have had trouble with their 410's have problems with 'boot' tapes. If you boot tapes by pressing PLAY on the recorder FIRST, try pressing START and turning the computer on and THEN press PLAY before finally pressing RETURN. It may be that the 410 is vulnerable to a power surge. If you still have problems, consider having your 410 checked.

I hope that your 410 woes are eased by this article but if you have any further tips, ideas or thoughts I would be delighted to hear them. Send them in to the Editor. ■

# Home Entertainment



# NEWS

February 1982

Dear Page 4 Reader,

In checking our files, the last time we published a newsletter on Page 4 magazine (assuming you're an "ex professional printer") was in July 1981. We can only say that time does fly when you're enjoying yourself and incidentally, in that time, our congratulations in Page 4 on our continuing improvement.

Our teams of editors have featured our Software Counsel and select artists (which mine and more customers continue to give each month) and recently we've included a re-print of the Atari XI range of peripherals ad., which stands with "These peripherals will be available soon."

What an opportunity about to the ad. Among other that, we've had an ad for (and out of ad) at several of the 1979 Program Sessions. The 1980 Book Drive, the 1980 Culture Festival and Touch Ball Contests. We've been able to do our report, before the end of February, the 1981 ad Cal. Parade, the 1981 Int'l Quality Parade and the 1981 Money Month's approach for the Atari's and the Super Controller. Well that's what we're doing (also "not get" for the Touch Table.)

The point about all this is that, over an entire about deliveries, we do know that we do have (within each as well as previous) the best and fulfill how computer and peripherals range constantly improved - but more. And the extent range of quality requires an approach. For us, there's someone in London, that manufacturers will work "better" but they certainly don't match the wonderful words of Atari.

And we speak fully committed with our sales support of Atari. We know that our customers at our Home Entertainment Atari Centers in Birmingham and Fresno and our "Software Counsel" and other customers like it to be just that way. We thank their customers,

If we haven't met you yet, please call, write or phone and find out what we're about. We shall welcome the opportunity to be of service.

Happy computing.

*Jim Kingfield*  
SIA WASHINGTON CO.

P.S. WE HAVE A FREE "TRIPER CATALOG" ON CASSETTE (SEE AND SEE BEYOND!) OFFER (SEE OUR CATALOG) UNTIL 31 MARCH 82. PLEASE ASK FOR DETAILS AND QUOTE PAGE 4.

# Home Entertainment



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